WHAT IS CLAIMED IS:

1. A rotary electric machine comprising:

a rotor; and

a stator having a stator core with a plurality of slots and a stator winding, wherein:

the slots include a plurality of regular slots and a plurality of irregular slots, and

the stator winding has a plurality of in-slot portions accommodated in the slots and coil ends, the in-slot portions and the coil ends being arranged to provide a discontinuity of the stator winding at a region where the irregular slots are located.

2. The rotary electric machine according to claim 1, wherein the stator winding has a plurality of conductors for providing the in-slot portions, the conductors being wound one over another.

3. The rotary electric machine according to claim 2, wherein the conductor is a continuous wire wound at least time around the stator core.

4. The rotary electric machine according to claim 1, wherein the stator winding has output leads extending beyond the coil ends, the output leads being located on a region where the regular slots are located.

5. The rotary electric machine according to claim 1, wherein the stator winding has output leads extending beyond the coil ends, the output leads being located on a region where the regular slots are located.

6. The rotary electric machine according to claim

1, wherein the in-slot portions have a plurality of regular in-slot portions being connected with other in-slot portions accommodated in two other slots, respectively, and a plurality of irregular in-slot portions being connected with other in-slot portions accommodated in another slot, the regular in-slot portions being accommodated in the regular and irregular slots, the irregular in-slot portions being accommodated in the irregular slots only.

7. The rotary electric machine according to claim 6, wherein the stator winding is a wave winding.

8. The rotary electric machine according to claim 1, wherein the in-slot portions have a plurality of regular in-slot portions being connected with other in-slot portions accommodated in two other slots, respectively, and a plurality of irregular in-slot portions being connected with other in-slot portions accommodated in another slot, the regular in-slot portions being accommodated in the regular slots only, the irregular in-slot portions being accommodated in the irregular slots and the regular slots.

9. The rotary electric machine according to claim 8, wherein the stator winding is a lap winding.

10. The rotary electric machine according to claim 9, wherein the in-slot portions are divided into an inner layer and an outer layer, each of the regular in-slot portions disposed in one of the layer is connected with the other two in-slot portions disposed in the other layer in the other two slots, and each of the irregular in-slot portions disposed in one of the layer is connected with the

other two in-slot portions disposed in the other layer in one of the slots.

11. The rotary electric machine according to claim 1, wherein the irregular slots are located side by side.

12. The rotary electric machine according to claim 1, wherein the stator winding has a plurality of conductors for providing the in-slot portions, the stator winding has no conductor that crosses over a region where the irregular slots are located.

13. The rotary electric machine according to claim 1, wherein the stator has a plurality of stator windings, the stator windings being radially stacked in the slot.

14. The rotary electric machine according to claim 1, wherein the stator has a plurality of stator windings, one of the stator windings being arranged to surround another stator winding.

15. The rotary electric machine according to claim 1, wherein the stator core has at least one slit along an axial direction.

16. A method for manufacturing a rotary electric machine, the rotary electric machine having a stator core with a plurality of slots and a stator winding accommodated in the slots, comprising:

winding conductors on a tool to form a belt-shaped coil;

drawing the tool out from the belt-shaped coil;

curving the belt-shaped coil into a ring; and

mounting the belt-shaped coil on the stator core by

inserting the conductors into the slots.

17. The method for manufacturing a rotary electric machine according to claim 16, wherein the stator core is a ring, and the belt-shaped coil is curved into a ring-shaped coil before inserting the conductors into the slots.

18. The method for manufacturing a rotary electric machine according to claim 16, wherein the belt-shaped coil is curved into a ring with the stator core after inserting the conductors into the slots.

19. The method for manufacturing a rotary electric machine according to claim 16, wherein the conductors are wound one over another.

20. The method for manufacturing a rotary electric machine according to claim 16, wherein the conductors are wound on a tool so that the conductors are orderly stacked according to the slots to form the belt-shaped coil, and the belt-shaped coil is mounted on the stator core by inserting the conductors into the slots in a disorderly fashion.

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